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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,012	02/10/2006	Peter Neugebauer	032301.440	7386
441 7590 12/20/2011 SMITH, GAMBRELL & RUSSELL 1130 CONNECTICUT AVENUE, N.W., SUITE 1130 WASHINGTON, DC 20036			EXAMINER SLIFKA, COLIN W	
			ART UNIT 1732	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/568,012	<b>Applicant(s)</b> NEUGEBAUER ET AL.	
	<b>Examiner</b> COLIN W. SLIFKA	<b>Art Unit</b> 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-4, 6, 8, 10-35, 39 and 40 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-4, 6, 8, 10-35, 39 and 40 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 27, 2011 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "good" in claim 39 is a relative term which renders the claim indefinite. The term "good" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is assumed that Applicant intends to define "good" by the flow rating and slope angle; however, those properties are incorporated within parentheses, which will be addressed below. If this is Applicant's intent, it is suggested that the indefinite term "good" be removed and the

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claim simply require the specific flow characteristics, as supported by the Specification. It should also be noted that a “flow rating of 2” may be indefinite. If Applicant so chooses to limit the claim to said flow rating, be sure to clearly indicate whether the required flow rating is less than (or equal to or less than), greater than (or equal to or greater than), or exactly 2. In other words, the flow rating could be limited to a range or a particular value (if supported by the Specification) and as written, “2” is a single value. Again, the indefiniteness of the use of parentheses will be discussed below.

Regarding claim 39, Applicant’s use of parentheses renders the claim indefinite because it is unclear whether the limitation(s) within the parentheses are part of the claimed invention. Applicant’s use of parenthesis is considered equivalent to the use of the term “for example.” See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-2, 4, 6, 8, 10-14, 20, 26-27, 32-35, 39, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roman (US Patent No. 6,171,602) in view of Deller et al. (US Patent No. 5,776,240), Hasenzahl et al. (WO 03/037379 A1, hereinafter referred to as Hasenzahl), Degussa press release titled “Dry Binder - A New Concept for Pressed Powders,” (June 12, 2003; hereinafter referred to as “the press release”) and Hasenzahl et al (2003/0108580, hereinafter referred to as Hasenzahl ‘580).

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Roman teaches powder comprising silanized porous silica granules used as carriers of various foodstuff additives, such as annatto extract, beta-carotene, beet powder, caramel color, carrot oil, fruit juice, paprika, riboflavin, saffron, turmeric, vegetable juice, and red cabbage (col. 2, lines 26-33). Regarding claims 1 and 35, Roman teaches that the silica granules absorb liquids in approximately a 1:1 ratio (col. 4, lines 62-67).

Roman does not teach the use of pyrogenically prepared silica.

Deller teaches pyrogenically prepared silica granules made by spray drying Aerosil (which is made by flame hydrolysis) and heat treating the result, with exactly the claimed dimensions and characteristics (see abstract) which can be used as adsorption media (col. 1, lines 28-29). It should be noted that while the particular silica of Deller is beneficial for use as a catalyst support, Deller also teaches that such silica granules are used as adsorption media (col. 1, lines 29-30). Deller even teaches that while spray dried granules of pyrogenically prepared silicon dioxides are known to be used as catalyst supports, they are not "optimally" suitable for such a purpose (Background). In addition, the press release teaches that the granules of Deller (Aeroperl) are known to be useful as adsorbates, and Hasenzahl teaches that such pyrogenically prepared silica is superior to precipitated silica, which typically has an unacceptably high water content and insufficient purity (p. 4, lines 2-8). Hasenzahl also teaches that such pyrogenically produced silica in granular form are superior to non-granulated pyrogenic silica because of its higher bulk density and tamped density, improved flowability, narrower grain size distribution, and dust-free processing (p. 22, lines 25-30). Furthermore, Hasenzahl '580

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teaches the use of pyrogenically-produced silica granulates as an adsorbate with at least one other substance including auxiliary substances, such as absorbents, antioxidants, biological additives, flavorings, preservatives, vegetable constituents, and vitamins (abstract and par. 98), all of which can be considered to fit the broad categories of "foodstuff" and "feedstuff" additives, and potentially even plant protection agents.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Deller's granules into Roman's powder because they are known to be useful as an adsorbate and to be superior to precipitated alternatives, as suggested by of Deller et al., Hasenzahl, Degussa press release and Hasenzahl '580.

As for the amount of additive adsorbed on the silica, Roman teaches that the silica granules absorb liquids in approximately a 1:1 ratio, thus amount of additive in amount of 0.001-200g per 100 g silica granule would have been obvious to one of ordinary skill in the art.

Regarding claims 2, 11, and 26, Roman teaches the use of riboflavin, which is both a food dye and a feedstuff additive.

Regarding claims 4, 8, and 10, Deller teaches adsorbate particles silanized with any of the claimed silane compounds.

Regarding claims 6 and 32, Deller teaches exactly the claimed dimensions and characteristics.

Regarding claims 12-13 and 20, Roman teaches the use of ascorbic acid, which is an antioxidant, a food preservative, and an acid.

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Regarding claim 14, Roman teaches the use of glyceryl ester derivatives as emulsifiers.

Regarding claim 25, Roman teaches the use of cinnamates, which are aroma agents.

Regarding claim 27, Roman teaches the use of cysteine, which is a chemical intermediate for the production of various food additives.

Regarding claim 33, Roman teaches the use of turmeric oleoresin.

Regarding claim 34, Roman teaches the use of beta-carotene, which is a free radical interceptor.

Regarding claims 39 and 40, as the silica of Deller is the exact same silica of the instant invention, as noted above, it is considered to have the same flow characteristics and compositional proportions, i.e. being sulphate free.

Claims 1, 3, 28, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minemoto (JP 02049707 A) in view of Deller, Hasenzahl, the press release and Hasenzahl '580.

Minemoto teaches a powder of boric acid adsorbed on porous silica granules. Boric acid acts as both an insecticide and a fungicide.

Minemoto does not teach the use of pyrogenically prepared silica.

Deller teaches pyrogenically prepared silica granules made by spray drying Aerosil (which is made by flame hydrolysis) and heat treating the result, with exactly the claimed dimensions and characteristics (see abstract) which can be used as adsorption

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media (col. 1, lines 28-29). In addition, the press release teaches that the granules of Deller (Aeroperl) are known to be useful as adsorbates, and Hasenzahl teaches that such pyrogenically prepared silica is superior to precipitated silica, which typically has an unacceptably high water content and insufficient purity (p. 4, lines 2-8). Hasenzahl also teaches that such pyrogenically produced silica in granular form are superior to non-granulated pyrogenic silica because of its higher bulk density and tamped density, improved flowability, narrower grain size distribution, and dust-free processing (p. 22, lines 25-30). Furthermore, Hasenzahl '580 teaches the use of pyrogenically-produced silica granulates as an adsorbate with at least one other substance including auxiliary substances, such as absorbents, antioxidants, biological additives, flavorings, preservatives, vegetable constituents, and vitamins (abstract and par. 98), all of which can be considered to fit the broad categories of "foodstuff" and "feedstuff" additives, and potentially even plant protection agents.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Deller's granules into Minemoto's powder because they are known to be useful as an adsorbate and to be superior to precipitated alternatives. In addition, Minemoto's requirements of 10-5000 Å diameter pores, 0.05-3 cm<sup>3</sup>/g pore capacity, and 1-300 µm grain diameters are all satisfied by Deller's granules. Regarding the amount of "substance" to amount silicon dioxide granule, the amount that is adsorbed is considered by Examiner to be dependent upon the physical characteristics and properties of the silicon dioxide carrier. As the carrier of Minemoto, as combined with Deller, is substantially similar to that of the instant claims, it is



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considered to exhibit similar adsorption characteristics. Additionally, it is considered to be within the purview of one having ordinary skill in the art to be able to determine effective amounts of adsorbed material based upon at least the carrier used and the intended use of the final product.

Claims 1, 19, 21, 29, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (US Patent No. 5,654,258) in view of Deller, Hasenzahl, the press release and Hasenzahl '580.

Park teaches a composition comprising trifluralin (an herbicide) in porous silica carrier particles. Park does not teach the use of pyrogenically prepared silica. Deller teaches pyrogenically prepared silica granules made by spray drying Aerosil (which is made by flame hydrolysis) and heat treating the result, with exactly the claimed dimensions and characteristics (see abstract) which can be used as adsorption media (col. 1, lines 28-29). In addition, the press release teaches that the granules of Deller (Aeroperl) are known to be useful as adsorbates, and Hasenzahl teaches that such pyrogenically prepared silica is superior to precipitated silica, which typically has an unacceptably high water content and insufficient purity (p. 4, lines 2-8). Hasenzahl also teaches that such pyrogenically produced silica in granular form are superior to non-granulated pyrogenic silica because of its higher bulk density and tamped density, improved flowability, narrower grain size distribution, and dust-free processing (p. 22, lines 25-30). Furthermore, Hasenzahl '580 teaches the use of pyrogenically-produced silica granulates as an adsorbate with at least one other substance including auxiliary

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substances, such as absorbents, antioxidants, biological additives, flavorings, preservatives, vegetable constituents, and vitamins (abstract and par. 98), all of which can be considered to fit the broad categories of "foodstuff" and "feedstuff" additives, and potentially even plant protection agents.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Deller's granules into Park's herbicide composition because they are known to be useful as an adsorbate and to be superior to precipitated alternatives. Regarding the amount of "substance" to amount silicon dioxide granule, the amount that is adsorbed is considered by Examiner to be dependent upon the physical characteristics and properties of the silicon dioxide carrier. As the carrier of Park, as combined with Deller, is substantially similar to that of the instant claims, it is considered to exhibit similar adsorption characteristics. Additionally, it is considered to be within the purview of one having ordinary skill in the art to be able to determine effective amounts of adsorbed material based upon at least the carrier used and the intended use of the final product.

Regarding claims 19, 21, and 34, Park teaches that the particles may be coated in alkyl naphthalene sulfonate sodium salt (col. 4, line 49), which is an alkali salt used as a wetting agent.

Claims 1, 15-18, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson et al. (US Patent No. 6,004,584) in view of Deller and the press release.

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Peterson teaches a body powder comprising powder carriers such as soy starch, modified corn starch, or microcrystalline cellulose (col. 3, lines 45-50); and binders such as isopropyl or magnesium myristate (col. 6, line 55).

Peterson does not teach the use of pyrogenically prepared silica.

The press release teaches that granulated fumed silica (e.g. Aeroperl, the material taught by Deller) is an ideal replacement for isopropyl or magnesium myristate as a dry binder in cosmetic applications, as it adsorbs the oily components and releases them upon compression. Deller teaches pyrogenically prepared silica granules made by spray drying Aerosil (which is made by flame hydrolysis) and heat treating the result, with exactly the claimed dimensions and characteristics (see abstract) which can be used as adsorption media (col. 1, lines 28-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Deller's silica granules (Aeroperl) as a dry binder in Peterson's body powder because "Dry Binder" teaches that silica granule adsorbates are superior dry binders and Deller specifically teaches that it is one intended use of the granules. Regarding the amount of "substance" to amount silicon dioxide granule, the amount that is adsorbed is considered by Examiner to be dependent upon the physical characteristics and properties of the silicon dioxide carrier. As the silica of Peterson, as combined with Deller, is substantially similar to that of the instant claims, it is considered to exhibit similar adsorption characteristics. Additionally, it is considered to be within the purview of one having ordinary skill in the art to be able to determine effective amounts

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of adsorbed material based upon at least the carrier used and the intended use of the final product.

Regarding claims 15-18, microcrystalline cellulose can be used as a gelling agent, thickener, binder, or stabilizer.

Regarding claim 22, the modified corn flour is an antilumping agent.

Regarding claim 23, soy starch contains glutamic acid, which is a flavor intensifier.

Claims 1 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Technical Bulletin Pigments No. 31 (Degussa AG, November 1995) in view of Deller, Hasenzahl, the press release and Hasenzahl '580.

The Technical Bulletin teaches that silanized silica is useful as an adsorbate for molasses in order to make a free-flowing powder.

The Technical Bulletin does not teach the use of pyrogenically prepared silica granules.

Deller teaches pyrogenically prepared silica granules made by spray drying Aerosil (which is made by flame hydrolysis) and heat treating the result, with exactly the claimed dimensions and characteristics (see abstract) which can be used as adsorption media (col. 1, lines 28-29). In addition, the press release teaches that the granules of Deller (Aeroperl) are known to be useful as adsorbates, and Hasenzahl teaches that such pyrogenically prepared silica is superior to both precipitated silica, which typically has an unacceptably high water content and insufficient purity (p. 4, lines 2-8), and to

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loose pyrogenic silica adsorbates, which typically have insufficient flowability (p. 3, lines 22-33). Furthermore, Hasenzahl '580 teaches the use of pyrogenically-produced silica granulates as an adsorbate with at least one other substance including auxiliary substances, such as absorbents, antioxidants, biological additives, flavorings, preservatives, vegetable constituents, and vitamins (abstract and par. 98), all of which can be considered to fit the broad categories of "foodstuff" and "feedstuff" additives, and potentially even plant protection agents.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Deller's granules as an adsorbate for molasses as taught in the Technical Bulletin because they are known to be useful as an adsorbate and to be superior to loose or precipitated alternatives. Regarding the amount of "substance" to amount silicon dioxide granule, the amount that is adsorbed is considered by Examiner to be dependent upon the physical characteristics and properties of the silicon dioxide carrier. As the carrier of the Technical Bulletin, as combined with Deller, is substantially similar to that of the instant claims, it is considered to exhibit similar adsorption characteristics. Additionally, it is considered to be within the purview of one having ordinary skill in the art to be able to determine effective amounts of adsorbed material based upon at least the carrier used and the intended use of the final product.

***Response to Arguments***

Applicant's arguments filed September 27, 2011 have been fully considered but they are not persuasive. Applicant's arguments will be addressed according to their relative numerals given in the Remarks filed 9/27/2011.

Regarding I, Applicant states the various preferred intended uses of the silicas of the prior art. This has been addressed sufficiently in the past 2 Office actions. It is important to recognize that regardless of the specific intended uses, the prior art teaches the use of silica as an adsorbent base. Applicant states that the reason why the primary reference of Roman would have been modified to include the Deller silica to attain the functions taught by the remaining secondary references is not entirely clear. Examiner respectfully disagrees. At least the prior Office action explicitly explains why each reference was relied upon and provides motivation for the combination, as is required by any 103 rejection involving more than one reference. One such reason would be that the silica of Deller, as shown by said remaining secondary references, is superior to precipitated silica and even non-granulated pyrogenic silica. Therefore, it would have been obvious to use the silica of Deller in the invention of Roman as said silica is known to be an effective/superior adsorbent and also to ensure that the powder of Roman benefits from superior characteristics such as improved flowability. As the title of Roman, for example, refers to "flowable powder," flowability is considered to be an important property of said powder. Applicant also argues that a prima facie case of obviousness is rebutted because the results of the instant application show improved flowability. Applicant's footnote (1) on page 10 discusses said results in further detail.

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Examiner respectfully disagrees. Said results and examples only compare pyrogenically-produced silica with precipitated silica. While Examiner can appreciate the results and would agree that said results do show a superiority of pyrogenic silica over precipitated silica, this is to be completely expected in view of the prior art of record, which explicitly states that granular pyrogenic silica is superior to both precipitated silica and even non-granular pyrogenic silica in characteristics such as flowability, water content, and purity. While said results may show that pyrogenic silica is superior to precipitated silica, said results are not considered to be unexpected because it is already known that such granular pyrogenic silica exhibits excellent properties and additionally is preferred over precipitated silica.

Regarding II, similarly to I, Applicant argues that the reason for the combination of prior art is not entirely clear and unexpected results have been shown. The argument regarding unexpected results has been addressed at least both above and in the prior action. Regarding the combination of references, Minemoto does not teach a specific type of silica. As such, it would have been obvious to employ one that is known in the art to be superior to others, and is an effective adsorbent carrier (i.e. the silica of Deller). The lack of specificity in Minemoto as to which type of silica should be used cannot limit said teachings. In fact, as Minemoto is not limited, it could be argued that any porous-grained silica could be used as the carrier of Minemoto. As the prior art of record suggests that the carrier of Deller exhibits excellent characteristics for several different properties and is at least an acceptable adsorbent, it would have been obvious to use the carrier of Deller in the invention of Minemoto.

Regarding III, similarly to I and II, Applicant argues that the reason for the combination of prior art is not entirely clear and unexpected results have been shown. The argument regarding unexpected results has been addressed at least both above and in the prior action. Regarding the combination of references, Applicant argues that all of the silica carriers of Park appear to be precipitated silicas. As stated both above and in the prior action, the prior art of record teaches that pyrogenic silica adsorbents are superior to precipitated silica adsorbents.

Regarding IV, it appears that Applicant misinterprets the rejection in view of Peterson. The rejection is not saying that it would have been obvious to substitute the powder carriers of Peterson for the adsorbent carriers of Deller, but is instead stating that it would have been obvious to use the silica granules of Deller as a dry binder in Peterson's body powder because the press release teaches that such silica adsorbates are superior dry binders. Peterson teaches the use of isopropyl or magnesium myristate as binders, and the press release explicitly teaches that said binders alone are inferior to dry binders utilizing Aeroperl (which is the silica of Deller as well as the instantly claimed invention).

Regarding V, similarly to I, II, and III, Applicant argues that the reason for the combination of prior art is not entirely clear and unexpected results have been shown. The argument regarding unexpected results has been addressed at least both above and in the prior action. Regarding the combination of references, the prior art of record suggests that the silica of Deller is useful as an adsorbent carrier and is superior to loose or precipitated alternatives. In other words, not only would the silica of Deller be



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at the very least a suitable alternative for the silica of the Technical Bulletin as a carrier for molasses, but it would also be expected to show superior properties.

Many of the arguments made by Applicant are similar to those made in the previous two actions. As such, there may be relevant arguments discussed in either of said two actions that have not been made in this action explicitly. Said Response to Arguments sections from the Office actions mailed June 28, 2011 and February 23, 2011 are not necessarily relied upon, but are nevertheless incorporated herein by reference.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLIN W. SLIFKA whose telephone number is (571)270-5830. The examiner can normally be reached on Monday-Thursday, 9:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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/COLIN W SLIFKA/  
Examiner, Art Unit 1732

December 17, 2011

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1732